REMARKS

I. INTRODUCTION

The above captioned Application was timely filed on July 26 of 2001 respecting an earlier Provisional Application filed August 1, 2000.

The above captioned Application contained two Claims.

The Examiner's action of May 13, 2002 (Paper No. 11) cited art against these two Claims.

Amendment A (Paper No. 14) filed by Applicant on or about November 13, 2002 argued the patentability of the Claims over the art and added new Claims 3 thru 10. This Amendment A was prepared in accordance with the procedures in place at that time and in a manner and style as required by the Patent Office for responses.

A Notice of Non-Compliant Amendment A dated November 21, 2002 (Paper No. 16) informed Applicant that Amendment A (Paper No. 14), filed November 13, 2002, did not comply with the newest and latest procedures.

A Response to Notice of Non-Compliant Amendment A (Paper No. 17) was prepared and filed on or about December 11 of 2002, filed by Applicant.

The next Office Action (Paper No. 19) dated January 2, 2003, the Examiner held that the responses, of November 13, 2002 and December 11 of 2002 as filed, were not fully responsive because they did not point out specific distinctions believed to render newly presented claims 3-10 patentable over the references.

Amendment B (Paper No. 29) filed on December 30, 2003, canceled Claims 1 thru 10 and presented all new Claims; numbering Claims 11 thru 30. Accompanying Amendment B was a Petition for Revival (Paper No. 22), which was granted on January 12, 2004 (Paper No. 23).

The next Office Action of February 26, 2004 (Paper No. 31) was the Examining Attorney's response to Amendment B (Paper No. 29).

Applicant responded to Paper No. 29 with Amendment C, filed May 26, 2004, including a vigorous argument that all claims are fully patentable over the art.

The most recent Action was in the form of a Notice of Non-Compliance (dated June 3, 2004) from Nicole P. Smith, Legal Instruments Examiner.

The present "RESPONSE, to the NOTICE OF NON-COMPLIANT AMENDMENT C", addresses the Office Action of February 26, 2004 (Paper No. 31) and also presents amendments to claims 11-28 and 30 and adds claims 31 thru 36; totaling 25 Claims of which 6 are independent and 19 are dependent. The listing of Claims begins at page 2 hereinbefore.

It should also be noted that the foregoing listing of Claims has been changed pursuant to the instructions of the O.P.L.A. [The above changes also required some changes in Claim identification herein in Section **IV(a) THE REJECTION ON 35 U.S.C. 102(a)**]

ARGUMENT

Reconsideration of the grounds of objections/rejections as expressed in the Office Action of February 26, 2004 is earnestly requested, in view of the within:

1) REMARKS, beginning on page 10 hereinbefore,

2) the amendments to the claims,

3) the attached EXHIBITS:

EXHIBIT 1 consisting of 3 figures,
EXHIBIT 2 consisting of 3 figures,
EXHIBIT 3 consisting of 1 figure,
EXHIBIT 4 consisting of 1 figure,
EXHIBIT 5 consisting of 1 figure, and
EXHIBIT 6 consisting of clean copies of paragraphs [0060], [0061], [0063] and [0064], and

4) Applicants Check No.: 3494 in the amount of $61.00, for the Claims; calculated as follows:

[Total Claims = 25;
20 claims allowed per Rule 37 CFR 1.16(c)
(25 -20 = 5);
(5 x $9 = $45); and,
Total Independent Claims = 6;
3 Independent Claims allowed per Rule 37 CFR 1.16(b)
(6 – 3 = 3);
(3 x $43 = $129)

[$129 + $45 = $174]]

Applicant previously submitted check No. 3491 (enclosed with the original Amendment C, filed May 26, 2004) in the amount of $113; [$174 - $113 = $61].

The changes discussed in the paragraph just before the ARGUMENT involved changing the Claims to be in numerical order regardless of the dependency of the Claims based upon the subject matter.

II. PREAMBLE

As a preamble, Applicant's Attorney would like to summarize the Examiner's grounds of rejection as set forth below.

First, the Examiner rejects claims 11-30 as clearly anticipated by: either

Dworak et al.; Patent No. 4,465,444, issued August 14, 1984

(hereinafter Dworak)

OR

Lipscombe; Patent No. 4,606,713, issued August 19, 1986

(hereinafter Lipscombe)

under 35 U.S.C. 102(a).

Secondly, the same claims 11-30 are rejected as unpatentable over the combination of Kalle; Patent No. 2,936,717, issued May 17, 1960 (hereinafter Kalle) in view of Martin et al.; Patent No.4,127,365, issued November 28, 1978 (hereinafter Martin) under 35 U.S.C. 103(a); the non-obviousness requirement.

Thirdly, relying on 35 U.S.C. 112 (1), the Examiner rejects the written description in failing to describe the manner and process of using the invention as described e.g. the enablement requirement.

III. 35 U.S.C. §112(1) REJECTIONS

Applicant's undersigned Attorney chooses to first address the §112(1) rejections; to assist the Examiner in arriving at a better understanding of the undersigned attorney's Remarks and Arguments respecting the remaining §102(a) and §103(a) rejections based upon the prior art cited against this Application.

III(a). THE REJECTION ON §112(1)

First, undersigned attorney will address the Examiner's inquires and instructions which are underlined in the Office Action, Paper No. 15, dated February 26, 2004, at page two, and quoted hereinafter;

1) "...how the sides of the gear housing are hydraulically clamped,..."

and

2) "...what part of the cover members are urged against the corresponding face of the gear housing by fluid pressure,";

and

3) "how both covers can be biased by fluid pressure at the same time since one chamber, e.g. 15a, is under discharge pressure; but the other chamber, e.g. 16a, is under suction pressure."

III(b). SPECIFIC ANSWERS

1) The sides of the gear housing are hydraulically clamped by reason of the fact that the pump is immersed in the fluid in the cavity. In fact, when the pump is operating, the fluid within the pump and fluid surrounding the pump, are in a hydraulic continuum. As a consequence of this hydraulic continuum, the pressure of the fluid within the pump, as generated by the rotating gears, is transmitted hydraulically to the fluid outside of the pump and yet within the cavity.

This phenomena, identified as a hydraulic continuum, is perhaps easier to realize if one considers that the pump is operating in a range from 3,500-5,500 revolutions per minute (rpm) and at a pressure of from 500 to 3,000 pounds per square inch (psi). Thus, the pressure created within the pump is transmitted hydraulically to the fluid outside of the pump by the rotation of the pump's gears. And this pressure is exerted against the outer surface area of the pump elements consisting of cover members, the gear housing and the end cap members. Since the outer surface area of the pump's parts is greater than the inner surface area, this hydraulically transmitted pressure acting on the larger outer surface area,

creates a force throughout the fluid, which exerts a clamping force which exceeds that force existing within the pump.

2) Next, "...what part of the cover members are urged...by fluid pressure,"?

It is believed that the answer to "...what part..." has already been answered. Thus, it is the force exerted against the entire outside surface area which urges the cover members and the end cap members against the corresponding face of the gear housing.

3) As to the third inquiry, both covers can be biased by fluid pressure at the same time because there is no suction pressure, as such. There is only one pressure or force in the hydraulic continuum, which exists inside the pump and outside the pump. In other words, both chambers are under pressure. There is no suction pressure in the pump interior. There is, of course, suction at the inlet port used for introducing fluid into the pump.

The explanation to follow will be based on certain schematic drawings (the EXHIBITS), which employ numerals to identify parts and which will thereafter be tied into actual parts of the actual working pump structure shown in detailed drawings of the captioned Application and as assisted by

the examination of the actual working pump attached to Amendment C, filed May 26, 2004.

III(c). EXPLANATION OF THE FORGOING ANSWERS

The explanation to follow will depend, in part, upon the EXHIBITS attached hereto.

These EXHIBITS identified as EXHIBITS 1 and 2, which are pictorial representations of an actual working pump showing the pressures and forces as discussed above.

EXHIBIT 1 consists of three figures.

Fig.1, is a perspective view of the actual pump of the present invention attached to the previous Amendment.

Fig. 2 is a sectional view of the pump shown in Fig. 1. EXHIBIT 1, and employs color coding, wherein the color blue, identifies the pressure at the "inlet" port corresponding to numeral "8a" of the Application drawings.

Of paramount interest, is the area that is color coded red as confined by the cavity, with the pressure being exerted against the greater outer surface areas of the pump thereby producing a "clamping force". This "clamping force" is exerted axially inwardly by reason of the larger outer surface area of the pump's parts as urged earlier.

Fig. 3, is an exploded view of the pump of EXHIBIT 1, Fig. 1 shown in perspective view and it can be noted using language used throughout the Application for Letters Patent.

EXHIBIT 2 consists of three figures;

Fig. 1, is an axial projection (section A-A) of the pressurized area in Fig. 3, taken through the center of the gear housing and therefore generates the expected figure "8" cavity as representing the pressure within the pump as generated by the rotation of the gears.

Fig. 2, is an axial projection (Section B-B or C-C) of the pressurized area at either end of the pump. This Fig. 2 annular projection either B-B or C-C represents a clamping force greater than that in Fig. 1.

Fig. 3, is a schematic side elevation view showing the cavity which contains the pump of EXHIBIT 1, Fig. 1 and showing the sections A-A, B-B and C-C for a counterclockwise rotation of the shaft and gears of the pump. Attention should also be directed to the language printed to the left of each of the figures which will assist the Examiner's understanding of the principle of pressure clamping (See Section **V** herein).

The foregoing disclosure and explanation of significant numerals and terms of the parts should allow a correlation of parts as set forth in the following section. It should be noted that the same numerals are used to identify the parts herein, in the captioned Application and throughout this explanation.

III(d). CORRELATION OF PARTS

Here we commence the correlation of the numerals and terms of the parts of the pump, used in identifying parts of the pump as shown in the drawings of the Application, EXHIBITS and the hardware as hereinafter explained.

Thus, in EXHIBIT 3, which consists of one figure, we see top cavity (16a), top cap member (31), top cover member (29), the gear housing (34), bottom cover member (26), bottom cap member (24), and the bottom cavity/chamber (15a).

Next, the Examiner's attention is respectfully directed to FIG. 5 of the drawings of the Application, and at the same time, amended paragraph [0063] of the Specification together with TABLE X, which appears in amended paragraph [0060].

> [In the interest of convenience EXHIBIT 6 (attached hereto) consists of clean copies of paragraphs [0060], [0061], [0063 including TABLE X] and [0064] as added in Amendment B, filed December 30, 2003]

In the paragraph [0063] of the Specification, we see the terms and numbers...top cap member (31), top cover member (29), the gear housing (34), bottom cover member (26), bottom cap member (24), etc. These are the same terms and numbers that were used in describing the view of the pump shown in EXHIBIT 3.

In addition to the top cap member and the top cover member and gear housing we can see in FIG. 5 (of the Schematic Drawings of the Application) a sectional view of the pump 2(a) and likewise a sectional view of the actuator thereabove. Within the pump 2(a) are shown six ball valves identified by the numbers (30), (18a), (28), (23), (21), and (20). These same numbers are shown in TABLE X, which was prepared in order to show these same valves and their position of being either open or closed. The six ball valves referred to are identified by numerals in the left hand column of TABLE X.

One will see, in the language below TABLE X, a discussion of the position of the ball valves as being either open or closed depending upon the direction of rotation of the drive shaft (35), whether it be "clockwise" or

"counterclockwise". The direction of rotation of the drive shaft (35) also controls the position of the piston (4b) and connected shaft (4a) in the "extend" or "retract" position (See for example, FIG. 5 and 6 of the Application drawings).

Next, the Examiner's attention is respectfully directed to amended paragraph [0063] (See EXHIBIT 6 for a clean copy of [0063]). In this paragraph we see the drive shaft (35) is rotating in a counterclockwise "ccw" direction of rotation (See FIG. 5).

Further, see gear housing (34) in which the gears (40) and (42) as secured to the drive shaft (35), are rotating in intermeshing relationship and urging fluid under pressure outwardly into contact with nearby pilot piston (19a) moving this pilot piston upwardly. At the same time pressure is exerted against the spring opposed ball (21a) compressing same to open the valve associated with that numeral. Simultaneously, fluid pressure against ball (20a), which is not spring-opposed, closes the opening at that position.

The immediate result of the foregoing is an increase in the pressure in the lower chamber (15a) resulting in the direction of the flow of the fluid

downwardly through, now open, ball valve (21a) located proximate to the conduit 6(a) urging fluid into conduit 6(a). This conduit 6(a) directs the fluid upwardly into the actuator (3a) thereabove, increasing the fluid pressure in the right hand side of the actuator (3a) which moves the actuator piston (4b) to the left to the "extend" position. This urges the fluid, located to the left of piston (4b), downwardly through conduit (7a) leading to upper chamber (16a).

The aforesaid upward movement of pilot piston (19a) due to the greater pressure in the lower chamber (15a), tends to compress the ball (18a) against the spring (not shown) to allow fluid to flow there through into upper chamber (16a).

[This fluid flow is gradual to compensate for the fluid being displaced by the movement of the piston (4b) to the left in the actuator, which urges fluid downwardly through conduit (7a) into the upper chamber (16a).]

As can be further seen, the pilot piston (25) is not affected by the pressure in (15a) and remains closed, while ball (28) is moved downwardly to the open position by reason of the slowly increasing pressure in the upper

chamber (16a), allowing fluid to flow there through and return to the reservoir (13a). The above described flow of fluid, in the pump and actuator, continues until the direction of the rotation of the shaft is reversed to a clockwise rotation (as actuated by switch (5) in FIG. 2).

It is urged that with the above detailed description of FIG. 5, it should not be necessary to describe FIG. 6 in the same detail, since reference to amended paragraph [0064] (See EXHIBIT 6 for a clean copy) taken in conjunction with the same TABLE X, reveals language adequate to describe the valve positions responsive to the change in direction of the fluid flow.

As stated in paragraph [0064] the foregoing results in a movement of the actuator piston (4b) to the right into the "retract" position.

Thus, FIGS. 5 and 6 illustrate the movement of the fluid out of the pump into the actuator through conduits at either end of the actuator to cause a movement of the piston and connected rod either to an "extend" position or a "retract" position, depending upon the rotation of the drive shaft, which of course, is controlled by the position of the switch (5) (See FIG. 2), controlling the bi-rotational electric motor (1a) (See FIG. 2), which in turn can control the drive shaft (35) into either direction of rotation.

Having shown a correlation in the numerals and terms identifying parts as used in the EXHIBITS, specifically EXHIBIT 3, and the numerals identifying the same parts in FIGS. 5 and 6; it would be appropriate to direct the Examiner's attention to FIGS. 9, 10, 11 and 12 of the drawings in the Application. FIGS. 9, 10, 11 and 12, as can be seen, are detailed drawings of the actual hardware used in making and assembling preferred embodiments of the present invention.

Starting with FIG. 11, (an axially exploded view shown in perspective) there is shown the top end cap (31) and top cover member (29) in spaced parallel relationship. Also shown is drive shaft (35), idler shaft (37), dowel pins (47) and (48). [As an aside, See also pilot piston (19a) and outlet (49).]

In FIG. 12 (likewise an exploded view in perspective) there is shown, the opposite bottom end cap member (24), the bottom cover member (26), and the gear housing (34), all in spaced apart relationship. Clearly cover member (26) will assume flush relationship with the gear housing (34) when the parts are urged to the left into assembled relationship, including gears (40) and (42) located in the expected figure "8" configuration of the cavity

in the gear housing (34) in which cavity gears (40) and (42) will rotate. Also to be noted is pilot piston (25) and ball valve (20a).

Now moving to FIG. 9 of the Application drawings, there is shown a horizontal, partial side elevation view of the actuator (3a), shown partly in section; in order to show the end of the drive shaft (35) just to the right of the electric motor (1a) (See FIGS. 1 and 2). Further we can see gear (40), gear (42), the idler shaft (37), end cap members (31) on the left, and (24) on the right, cover member (29) on the left and (26) on the right.

Rotation of the gear's drive shaft (35) will cause the intermeshing gears to rotate resulting in fluid exiting the pump out either conduit (6a) or (7a), depending upon the direction of rotation of the drive shaft and gears. (See FIG. 2) The conduits in FIG. 9, are identified by the same numerals (6a) and (7a). Conduit (6a) leads from the pump to the near side actuator member, while conduit (7a) leads upwardly and laterally across to the far end of the actuator (see FIG. 10). Thus, a counterclockwise movement of the drive shaft (35) and the connected gears will move fluid under pressure out conduit (6a) leading to the near side of the actuator (3a) (See FIG. 1), which will urge the piston (4b) to the "extend" position. A clockwise movement of

the drive shaft (35) will move fluid under pressure out conduit (7a), which proceeds upwardly and to the right to the opposite end of the actuator/cylinder (3a). (See FIG. 10) The fluid pressure at the right end of the actuator (3a) moves the piston (4b) (See FIG. 2) to the left into a "retract" position.

It is urged that the foregoing explanation should be sufficient to enable one to knowledgeably view the other figures such as, FIG. 7 being an end view of the bottom cap member (31) together with the drive shaft (35) and the idler shaft (37) and also sections taken therein namely horizontal section 8-8 and vertical section 15-15. These sections 8-8 and 15-15 are seen in Application drawings FIG. 8 and FIG. 15 respectively. In each of these figures the parts are identified by the same numerals as used in FIGS. 4, 5, 6, 9, 10, 11 and 12 and EXHIBIT 3 and as well, EXHIBIT 1, Tables 1, 2 and 3.

While not being bound to any theory; it is believed that the unique, combination, design, location and choice of unopposed ball valves (28) and (20a) and spring opposed ball valves (21a), (23), (18a) and (30); together with the location, choice and combination of pilot valves (19a) and (25), together with the unique location and design of the passageways as

interrupted by the aforesaid valves, cooperate to achieve a pumping movement of the fluid in one direction of flow then in the opposite direction of flow of fluid by reversing the direction of rotation of the gears, which are secured to the shaft (35) and in turn are driven by a bi-rotational electric motor (1a) controlled by a three-positioned switch (5). Furthermore, it is realized that the pump as identified and detailed hereinabove can be fluidly connected to opposite ends of a hollow body (usually a closed cylinder) containing a piston and connected piston rod which is capable of moving in either direction depending upon the rotation of the shaft and gears.

It is further urged that the entirety of Section III taken in conjunction with the examination of the actual pump which was attached to the original Amendment C (filed May 26, 2004). Said pump being designed and constructed in accordance with the present invention, should satisfy the Examiner that Applicant's written description of the invention will enable one to make and use the same and that the Claims, as amended, point out the subject matter, which the Applicant regards as his invention.

It is further urged as a result of the foregoing discussion that these claims are therefore patentable and it is requested that the rejection and the grounds noted, be withdrawn.

Next, we come to the rejection on art.

IV REJECTION ON ART

First, the Examiner's attention is directed to the "PREAMBLE" hereinabove for a "summary" of the grounds of rejection and for convenience that summary will be repeated hereinafter.

"First, the Examiner rejects claims 11-30 as clearly anticipated by either Dworak et al. or Lipscomb under 35 U.S.C. 102(a)."

"Secondly, the same claims 11-30 are rejected as unpatentable over the combination of Kalle in view of Martin et al. under 35 U.S.C. 103(a); the non-obviousness requirement."

"Thirdly, ...relying on 35 U.S.C. 112 (1),..."

The third part of the "summary" has been addressed previously herein in section III.

IVa THE REJECTION ON 35 U.S.C. 102(a)

It is perceived that the Examiner's rejection is stated in rather general terms. Thus, the Examiner relies upon two references:

Dworak or Lipscomb

and holds claims 11 through 30 as clearly anticipated by these references.

It is urged that this rejection requires that one find all of the elements or parts (or their equivalents functioning in essentially the same way) as are claimed by Applicant; in each of the above references. *Shanklin Corp. v. Springfield Photo Mount Co.*, CA 1 (Mass.) 1975, 521 F. 2d 609.

An Ohio court has phrased it somewhat differently ...there is no anticipation unless all of the same elements are found in the same situation and united in the same way to perform an identical function. *Holmes v. Thew Shovel Co.*, D.C. Ohio 1969, 305 F.Supp. 139; *Verdegal Bros., Inc. v. Union Oil Co.*, (CAFC 86-1258); 814 F.2d 628; 2 U.S.P.Q. 1051.

Not withstanding these rather general terms as used by the Examiner hereinabove, Applicant's attorney will make reference to parts and relationship of parts identified by numerals that will distinguish Applicant's claims as patentable over the references.

Thus, referring to Claim 11, the language of element (4), "...cover members..." and the definition there as, "...cover members being located in generally flush coextensive abutment with said gear housing and said intermeshing gears..." and the "...wherein..." clause, "...the total outer surface area of said housing and cover members is greater than the interior surface area of the pump...". This structure is not even hinted at by either Dworak et al. or Lipscombe.

An examination of the references Dworak et al. and Lipscombe fail to disclose the above quoted language and certainly nothing equivalent to that language, nor the functioning related thereto. It follows that Claim 11 is patentable as not clearly anticipated by either of the references. The latter conclusion also applies to dependent Claims 13, 22 and 28. [And of course, these claims contain additional distinguishing language over and above that of Claim 11, as follows.]

In Claim 22, see, "...wherein the gear housing and the cover members are surrounded by the pump's generated pressure..."

In Claim 13, see, "...the cover member are machined to define internal passageways..." nowhere suggested by the art.

In Claim 28, see, "...said internal passageways are machined to contain a plurality of ball check valve means...".

Claim 12, an independent Claim, is similarly patentable by reason of the following language, "...cover members located respectively on each side of said gear housing, in generally flush abutment with the surface of said gear housing and said intermeshing gears within...", this language is certainly not anticipated by either Dworak et al. or Lipscombe.

Claim 15, is dependent upon Claim 22, and so is clearly patentable, but in addition, recites a pair of, "dowel pins", which further distinguishes the claims from the references Dworak et al. or Lipscombe.

Claim 16, is dependent upon Claim 15 and therefore patentable and additionally directed to a pump, "... fluidly connected to a linear motor, which, extends, retracts and holds...". And additionally, "...check valve and pilot actuated check valve...". The quoted language above is clearly not anticipated by Dworak et al. or Lipscombe.

Claim 13 is an independent Claim, drawn to a hydraulic gear pump, "...said pump comprising...two cover members...characterized by an outside axial area larger that its inside axial area,...whereby cover members

are hydraulically clamped..." which differentiates Applicant's claims from either the Dworak et al.or Lipscombe references.

Claim 26 is, dependent upon Claim 13, therefore fully patentable, but in addition is directed to a, "...pump plus an actuator...located in a hollow body...", This language further distinguishes Claim 13 as patentable over the references.

Claim 27, is dependent upon Claim 13 and accordingly patentable, but in addition includes the language, "...cover members to define passageways and voids for ball valves...".

Claim 30, also dependent upon Claim 13, and is similarly therefore fully patentable for the same reasons as stated above and otherwise contains the language, "...wherein the pressure outside the pump...at least...the pressure inside the pump...". Additionally contains, "...end cap members...each having facing surfaces which are machined..." which is not suggested nor taught by any of the references in the sense of anticipation of section 103(a).

Claim 14, dependent upon Claim 13, and is therefore obviously fully patentable as Claim 13 and besides has distinguishable language as follow,

"...cover members...generated pressure...rotation of said pump...pressure on the inside...outside of the pump...the same...".

Claim 17, dependent upon Claim 22 and is therefore patentable for the same reasons, but additionally defines, "...a radial seal...".

Claim 18, being directed to the combination of a "linear actuator" and "a pump" has not been addressed by the most recent office action. The same can be said of Claims 19, 20, 23, 24 and 25.

Claim 21 is dependent upon Claim 14, and therefore is patentable, but in addition has distinguishable language as follows, "...two or more dowel pins...".

Claim 23, dependent upon Claim 22 is clearly patentable and in addition contains distinguishable language as follows, "...a fluid reservoir...surrounding said hydraulic pump...".

Claim 25 is dependent upon Claim 24 and in turn dependent upon Claim 23 and therefore is clearly patentable over the references.

Claims 31 thru 36 are new and have not been examined by the Examiner.

Claim 31 is an independent claim, which is a new Claim, and, is directed to a combination of, "...an elongate hollow body having a piston and a piston rod...a bi-rotational pump...". The quoted language of Claim 31 is not found in either Dworak et al. or Lipscombe.

Claim 32 is an independent claim directed to a "gear pump" comprising, "...cap members...machined...define...internal passageways...". Accordingly, Claim 32 is fully patentable over the references Dworak et al. or Lipscombe.

Further Claims 33, 34, 35 and 36 are also fully patentable because in addition each claim contains distinguishable language.

In summary it is urged that the claims referred to are fully patentable since they have been shown to be not suggested or hinted at by the references, either independently or in combination.

While one may find one piece in Dworak and another piece in Lipscombe, such a suggestion can only be valid if one suggests adding the pieces together.

IVb THE REJECTION ON 35 U.S.C. 103(a)

This leaves the rejection, on 35 U.S.C. 103(a), the non-obviousness section, as recited herein in the PREAMBLE and such rejection is repeated just below for convenience of the Examiner.

"...the same claims 11-30 are rejected as unpatentable over the combination of Kalle; Patent No. 2,936,717, issued May 17, 1960 (hereinafter Kalle) in view of Martin et al.; Patent No.4,127,365, issued November 28, 1978 (hereinafter Martin) under 35 U.S.C. 103(a); the non-obviousness requirement."

Also for convenience, the statutory section relied upon to wit, the section (a) of § 103 of Title 35 is set forth hereinafter.

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time of the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negative by the manner in which the invention was made.

As noted hereinabove (in the previous section **IVa),** it is also perceived in this section that the Examiner's rejection on this statutory ground is stated in rather general terms. Thus, the Examiner relied upon two references, Kalle in view of Martin et al., but with no reference to any parts of Applicant's drawings mentioned.

Several guidelines based on Hornebook Law follow.

1) § 103(a) requires that the subject matter as a whole must be obvious...in order to combine the teaching of one or more patents...,

2) one of them must suggest the desirability of the combination. *Vandenberg v. Dairy Equipment Co.*, 740 F.2d 1560, C.A. Fed. 1984; 224 U.S.P.Q. 2d, 195.

3) It is generally agreed that one cannot "pick" and "choose" certain parts or elements, selected from one reference, with another "pick" and "choose" exercise from another reference, and combine them to arrive at some composite which is relied upon to support an obviousness rejection.

4) Each patent reference must be examined in its entirety in order to make the rejection appropriate. This is especially true since Applicant

insists we are dealing with an entirely new concept here, which is that of a pressure "clamped" pump.

5) The mere fact that the same elements appear in a claim as in a reference, does not meet the test of § 103(a) since the invention as claimed may reside in the novel functions of the elements in combination. *BVlumcraft of Pittsburg v. Citizens and Southern Nat. bank of S. C.*, W.D.S.C 1968, 286 F.Supp. 448.

With these thoughts in mind, it is urged that a careful review of the entirety of each of the references, Kalle and Martin et al., find no support for the position that any combination of these references meet Applicant's claims.

Thus, the recitation of certain parts or functions, as quoted at pages 28 and 29 hereinabove, as not being clearly anticipated by either Dworak et al. and Lipscombe and these parts and functions represent "the differences" referred to in § 103(a).

It is strenuously urged that "these differences" are not made obvious by a combination of the Kalle and Martin disclosures viewed in their entirety by one ordinarily skilled in the art.

Thus, even if one sees parts or identifies parts in "these differences", there is no teaching seen in either Kalle or Martin et al. of the value as assembling these parts as Applicant has done to arrive at a really novel result.

The foregoing should satisfy the Examiner's rejection stated in general terms, as noted hereinabove.

Rather than rely solely on the previous paragraph, Applicant's Attorney's asserts that Applicant's invention constitutes a totally new concept which is that of a pressure "clamped" pump! And this merits discussion more fully hereinafter (See section V supra).

Thus, Applicant's pressure "clamped" pump is achieved by the selection of known elements and parts, but the arrangement thereof represents a unique and novel exercise and the culmination thereof achieves a result neither, as clearly anticipated by Dworak or Lipscombe (in the sense of 102(a)), nor by the combination of Kalle and/ or Martin (in the sense of 103(a)). [It is emphatically asserted that the claims defining this pressure "clamped" pump are therefore patentable.]

V PRESSURE "CLAMPED" PUMPS VS. PRESSURE "BALANCED" PUMPS

In the interest of supporting the assertion as to Applicant's pressure "clamped" pump as being distinct and different from the pressure "balanced" pump; several schematic drawings will be described hereinafter. These schematic drawings are identified as EXHIBIT 4A and EXHIBIT 5.

EXHIBIT 4A is devoted to the structure of a pressure "balanced" pump and shows in the upper view, a perspective view, partially broken away, of a pair of intermeshing gears, mounted for operative pumping. While the lower figure is an exploded view, in perspective, showing the gears, the gear housing and the use of bearing blocks and as well, the use of cover members.

EXHIBIT 5 is a vertical section of a side elevation view of a pressure "clamped" pump showing gears, gear housing, cover members and drive shaft, idler shaft, and other terms as they belong to the gear pump part in common. In fact, it may be noted that it is Applicant's putting together of these parts in a manner as he has done, is not hinted or suggested by any of

the references, which constitutes the invention. Therefore, the claims directed to this combination are fully patentable.

Reference may now be made to EXHIBIT 4B for a text which if read carefully explains the difference between a pressure balanced pump and a pressure balanced pump.

It may be partially noted the Martin reference teaches away from Applicant's invention as claimed since any attempt to change the direction of rotation would result in the Martin pump self-destructing.

It should be further noted that Kalle discloses a pump having but a partial gear housing and discloses no end covers instead relying upon disclosed flexible flaps acting as partial gear covers. The Kalle pump is not truly bi-rotational; the pump generated pressure does not hold the pump together as does Applicant's invention as claimed.

Finally, it is urged and submitted that Applicant is the first person to have invented a pressure "clamped" pump by means of the choice and selection of parts and their arrangement in a specific manner as to provide for reversible rotation in a specific manner, including machined surfaces of

cover members and end cap members, which achieve the unique result, which is not possible with any of the pressure balanced pumps.

It is urged that Applicant has made a bona fide effort to meet the Examiner's rejections and certainly to advance the prosecution of this Application.

It is accordingly believed that a favorable reconsideration, of the prior art relied upon and the grounds of rejection, is believed in order and such action is earnestly solicited.

Respectfully submitted,

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CERTIFICATION OF SERVICE

This is to certify that the original RESPONSE TO NOTICE OF NON-COMPLIANT AMENDMENT (Dated June 3, 2004)(P-954-A-2) inclusive of EXHIBITS 1-6 was deposited in the United States mail Service, by Express Mail, Postage prepaid, addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 **on** this **2nd** ~~day~~ of **July, 2004**.

Paul F. Stutz

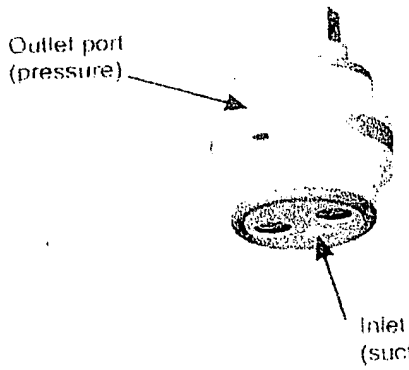

Fig. 1

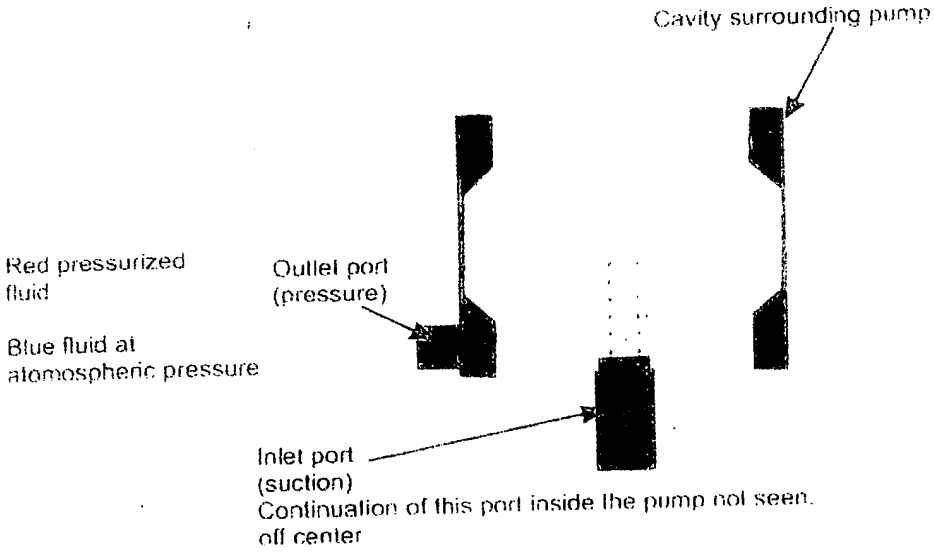

Fig. 2

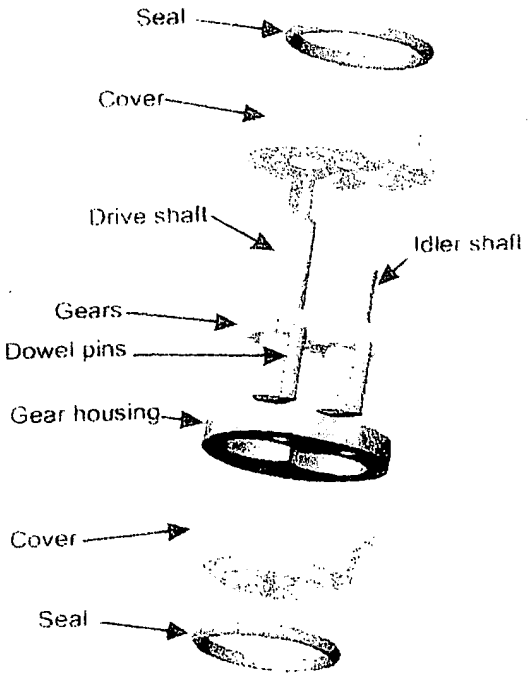

Fig. 3

EXHIBIT 1

Pressure clamping of bi-rotational pump

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Amdt. Dated, July 2, 2004
Reply to Notice of June. 3, 2004

Figure 1 showing axial projection of pressurized area (shaded area).
This area is exposed to the pressure generated by the pump and thus resulting in an axial separating force within the pump.

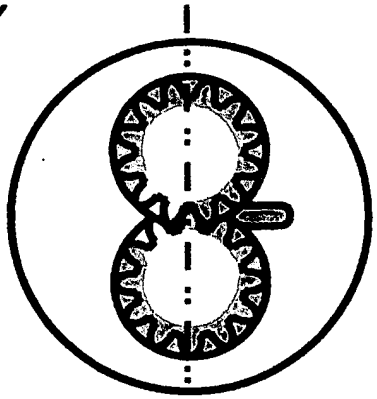


FIGURE 1,
PROJECTION A - A

Figure 2 shows the axial projected pressurized area from either end of pump (shaded area, B - B).
This area is exposed to the pressure generated by the pump and resulting ina clamping force opposing the force in Figure 1.
As the area in Figure 1 is smaller than the area in Figure 2 the resulting force will be a clamping force holding the pump together axially. The net force will force the pump against the opposite end of the cavity.

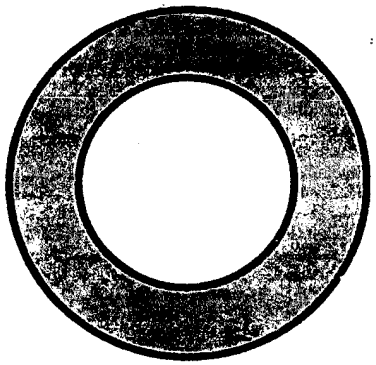


FIGURE 2,
PROJECTION B - B

The above shows the forces in clock wise rotation of the pump. With counter clock wise rotation the area in Figure 1 is mirrored along shown axis in Figure 1 and the axial force changing direction from B - B to C - C.
The result is a pump which is clamped together by its own generated pressure independent of the direction of the rotation, fluid direction.

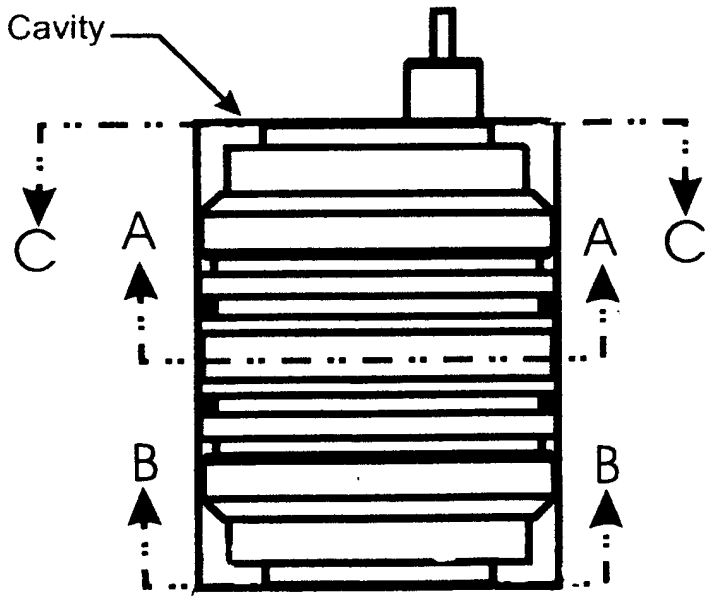
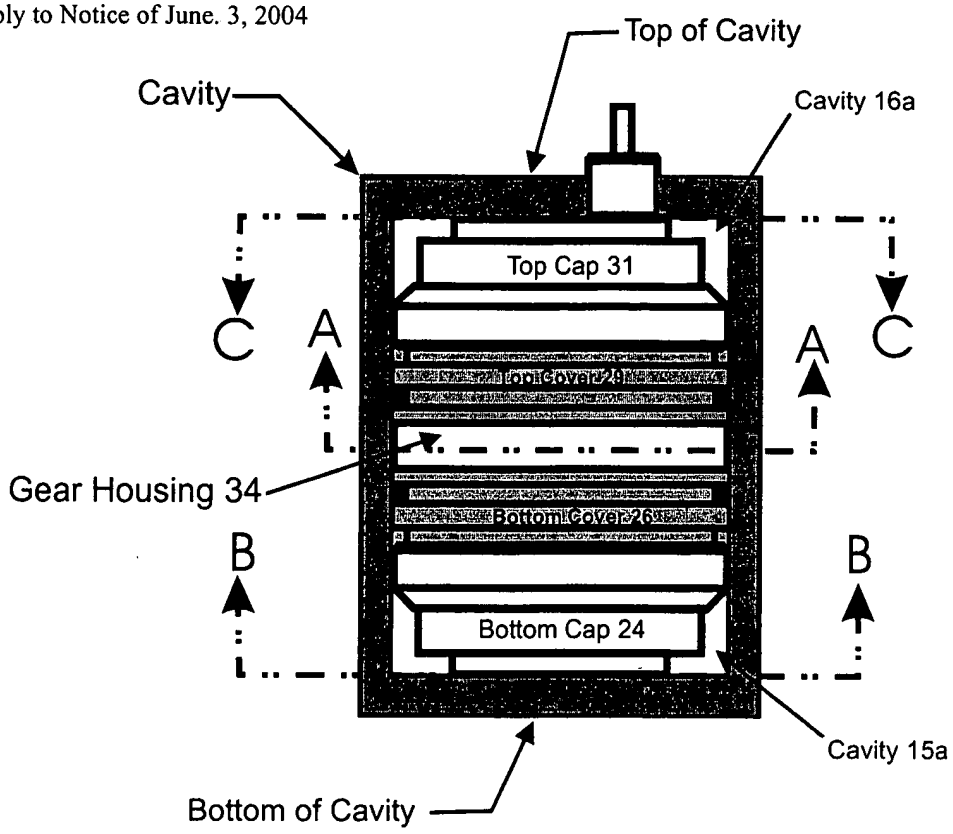


Fig. 3

EXHIBIT 2



When cavity 145a is pressurized pressure acting at Bottom Cap 24 giving a force directed towards the shaft side of the pump. This force is transferred to the Bottom Cover 26 and then further to the Gear Housing 34. The reaction force from the Gear Housing 34 is then transferred to the top Cover 29, Top Cap 31 and then to the top of the Cavity. The force created by the pressure on the Bottom Cap 24 is then clamping the pump together axially.

By changing the rotation of the pump the pressure will appear in Cavity 16a and the resultant axial force will then be taken up by the Bottom of the cavity and resulting in an axial clamping of the pump.

EXHIBIT 3

Pressure balanced gear pump

as in Dwerak and Lipscomb

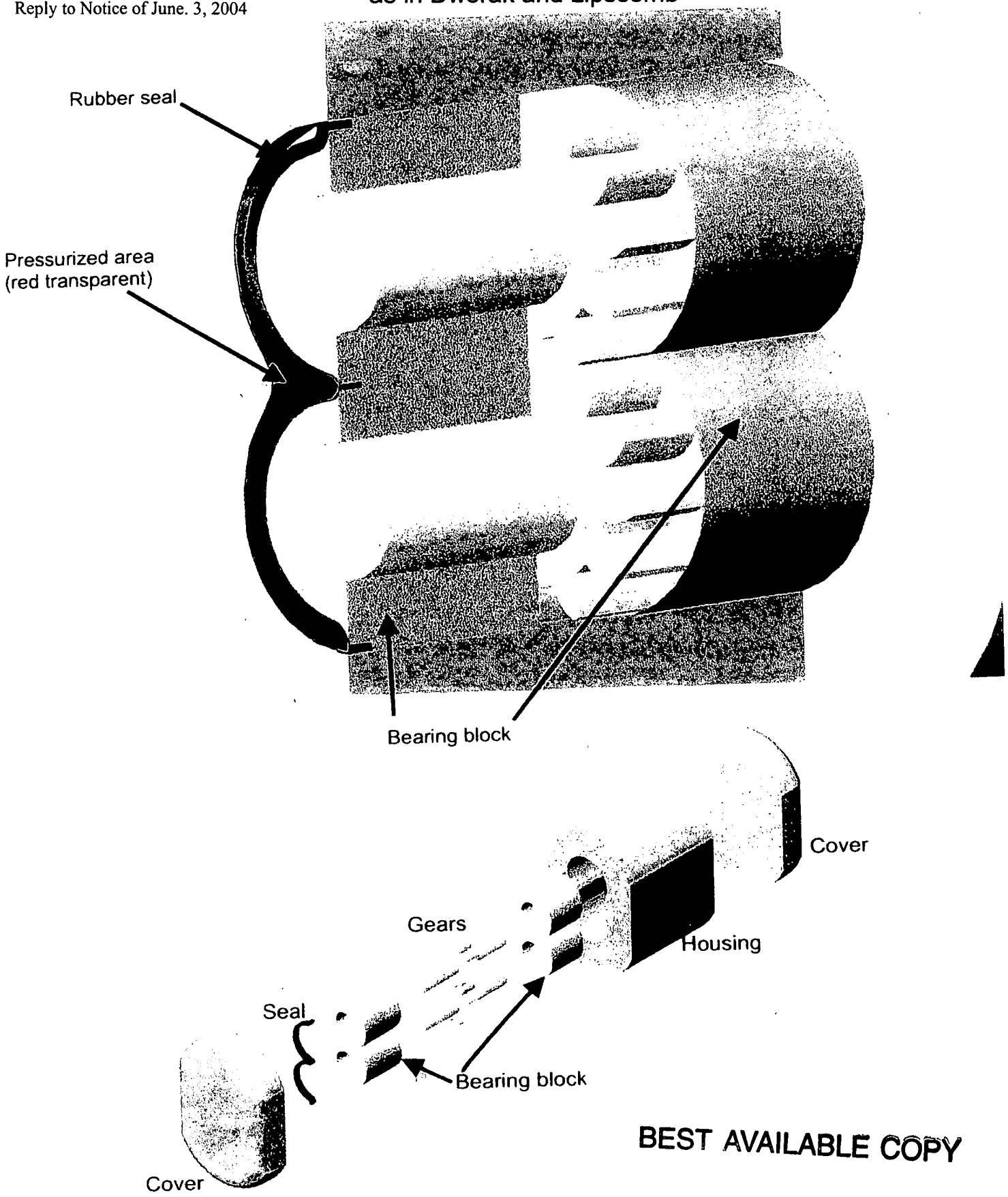


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EXHIBIT 4A

Pressure Balanced Gear Pump

As in Dworak and Lipscomb

The pressure balanced gear pump is a variable clearance pump. The term variable clearance means that the end plates (bearing blocks) are floating and will adjust themselves to proper clearance between the gear face and the face of the bearing block. This is very different from a fixed clearance pump where the clearance is built in as a difference in thickness of the gears relative to the gear housing as in the patent application.
The function of pressure balancing is seen in the enclosed sketch. The bearing block has a groove on the opposite side of the gear face where a seal is placed. This seal together with the gear housing makes a border to a defined area, which is pressurized by the pumps generated pressure. This area is of the same size as the pressurized area on the opposite, gear side. As the same pressure is acting on equal areas on opposite sides the block is balanced and will not move in any direction by the pressure. In order to achieve some force to move the bearing block towards the gear face the seal made out of rubber will act as a spring so there is a slight contact between the gear face and the bearing block.
There must be at least 50 patents around this principle with very slight variations of the same theme. As can be seen Dworak has a large solid bearing block but Lipscomb has a bearing block and a plate, which is pressure balanced. The result is the same the plate or bearing block is balanced by the pumps generated pressure.

The pressure clamped pump is very different as the width of the gears and the gear housing is different to have a defined clearance. The gear housing is sandwiched between the covers and there is nothing that can change the clearance other than deformation of the covers. The covers correspond to the bearing blocks in the pressure-balanced pump. In the pressure clamped pump the covers (bearing blocks) are fixed and in the pressure-balanced pump they are floating axially.
The advantage of pressure clamping is that no bolts are needed to keep the pump together which will stretch and degrade the performance of the pump. Also the size of the pump can be considerably smaller. Note that the same objections were made to the 715 patent.

EXHIBIT 4B

Pressure Clamped Gear Pump

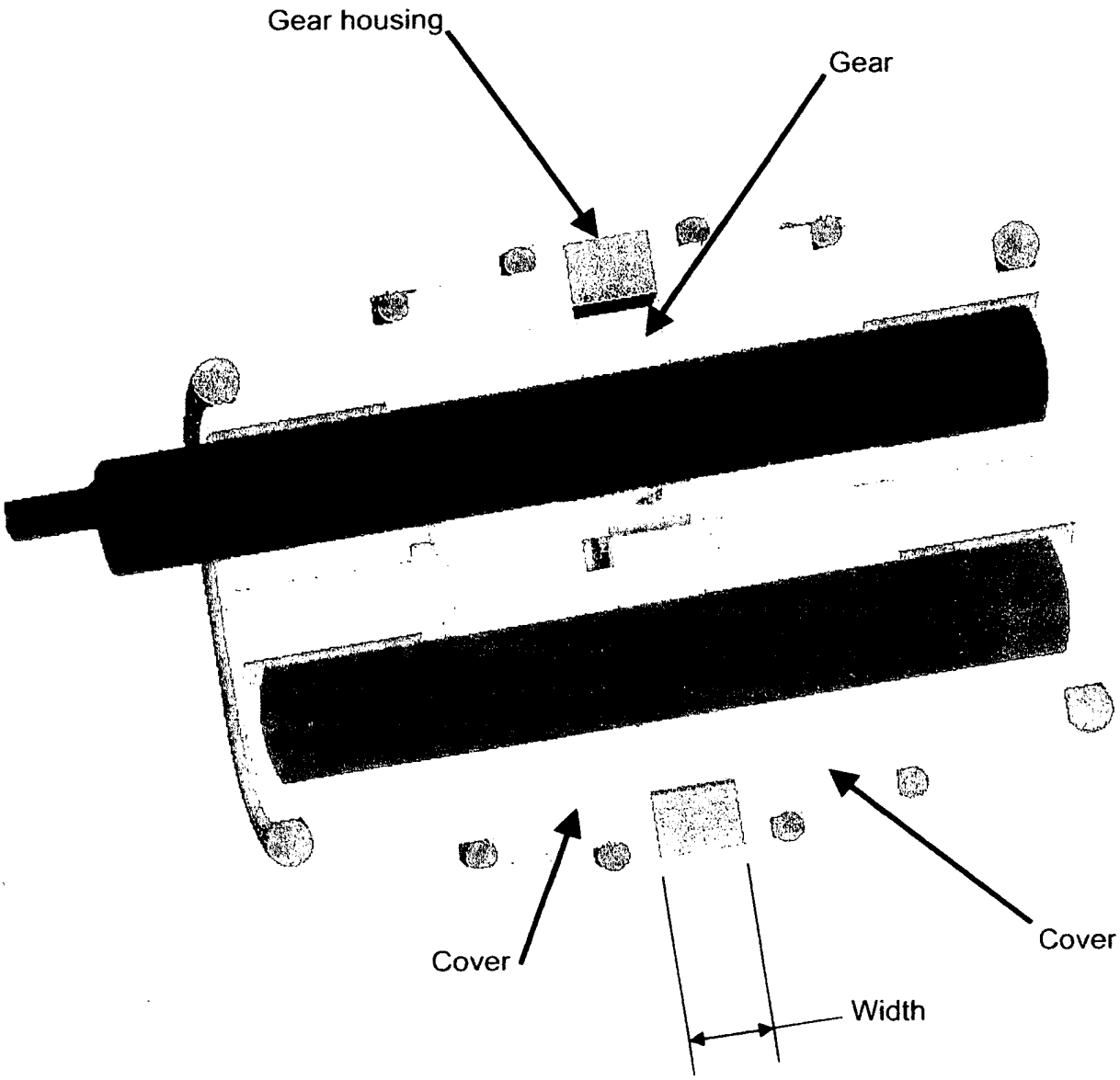

EXHIBIT 5

[0060] For purposes of clarity Fig. 3 is schematic in that the bi-rotational pump **(2a)** and its reservoir enclosure **(13a)** and the actuator cylinder **(3a)**, including piston rod **(4a)** and piston **(4b),** are shown in distinct, vertically spaced relationship. The reservoir **(13a)** situated below the pump **(2a)**, is the source of fluid which passes (via inlet 8a) into and through the pump into either the lower chamber (15a) or upper chamber (16a) depending upon the direction of the rotation of the pump (2a). [Chambers (15a) and (16a) are separated by wall (14a).] Continued rotation of the pump (2a) and the corresponding gears (40 and 42) urges fluid either out of chamber (15a) or (16a) via conduit (6a) or (7a) upwardly into one or the other ends of the actuator (3a). This liquid pressure in the actuator (3a) causes a movement of the piston (4b) and connected piston rod (4a) in either a retract or extend direction. The above discussion of FIG. 3 is more detailed in the explanation of FIGS. 4, 5 and 6 hereinafter taken also with the data in TABLE X below in which Column 1 identifies the ball valves in question.

TABLE X

VALVE	FIG. 4 No Rotation	FIG. 5 ccw Lower Chamber (15a) Extend	FIG. 6 cw Upper Chamber (16a) Retract
23	valve closed	valve closed	valve open
18a	" closed	" open	" closed
21a	" closed	" open	" closed
30	" closed	" closed	" open
20a	" n/a	" closed	" open
28	" n/a	" open	" closed

The other columns identify FIGS. 4, 5, and 6 showing the position of the valve as either open or closed, depending upon the rotation of the driveshaft (35) and the connecting gears. FIG. 4 shows the valve position where there is "no rotation" of the driveshaft (35). FIG. 5 shows the position of the various valves (open or closed) where the rotation of the driveshaft (35) is counterclockwise (ccw). FIG. 6 shows the open or closed position of the corresponding valve when the driveshaft (35) is rotating in a clockwise (cw) rotation. TABLE X also shows in the column headed FIG. 5 that the piston (4b) is in an extended direction with counterclockwise rotation while

EXHIBIT 6

FIG. 6 shows that the valve positions, as shown, for achieving a retracting movement of the piston (4a) and the connected piston rod (4b).

[0061] In FIG. 4, as noted in TABLE X, represents a "no rotation" position of the driveshaft (35) and wherein valves (23), (18a), (21a) and (30) are closed. They are closed because with "no rotation" of the driveshaft (35) there is no pressure in either chamber (15a) or (16a) to actuate the pilot pistons (19a) or (25), either of which would open the corresponding valves (18a) or (23) respectively. Likewise valves (30) and (21a) are closed and held closed by the spring as shown because there is no pressure to overcome the resistance of the spring holding the respective valves (30) and (21a) in the closed position.

[0063] Referring to FIG 5 and TABLE X the driveshaft (35) is rotating in a counterclockwise (ccw) direction resulting in a gradual build up of pressure in the lower chamber (15a). As a result of the pressure exerted upwardly against pilot piston (19a) sufficient to compress the ball (18a) against the opposed spring thereby opening valve (18a). Simultaneously the pressure build up in the lower chamber (15a) compresses ball (21a) against the opposed spring opening the valve (21a). Also simultaneously the ball valve (20a) is held in the closed position by the increased pressure. More importantly the more increased pressure causes the fluid to proceed as exiting (as shown by the arrow) out conduit (6a) into the right side of the actuator (3a) exerting pressure on the piston (4b), this forces the piston (4b) to the left to the extend position. This displaces the liquid to the left of piston (4b) down conduit (7a) and into the upper chamber (16a) as noted. This gradually increases the pressure in the upper chamber (16a), which is relieved by the opening or the downward movement of the ball (28) and also the valve (18a) urged upwardly by the pilot piston (19a). Of course, the pressure in chamber (15a) still occurs by reason of the counterclockwise movement of the driveshaft (35) and the intermeshing gears (40 and 42).

[0064] Referring now to FIG. 6 and TABLE X the parts/components of the pump (2a) and the actuator (3a) are shown when the drive shaft (35) is moving in a clockwise (cw) direction of rotation, resulting in movement of

the piston (4b) to the right into the retracted position. The fluid from the pump (2a) now exerts pressure causing the ball valves (28, 18a, 21a) that were open to become closed and ball valves (23, 30, 20a) that were closed to become open. As a result then, this reversal of the rotation causes the fluid to move out of the upper chamber (16a) under pressure, through conduit (7a) into the actuator (3a) to the left of piston (4b). This in turn moves liquid out of the opposite end of the actuator (3a) down conduit (6a) into the lower chamber (15a) and through valve (23) back to the reservoir (13a) to initiate a reversal to the FIG. 5 condition by reason of changing the rotation of the pump (2a) from clockwise (cw) to counterclockwise (ccw).